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(71) Applicant (for all designated States except US): NA-  
TIONAL UNIVERSITY OF SINGAPORE [SG/SG];  
10 Kent Ridge Crescent, Singapore 119260 (SG).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **DING, Jeak, Ling**  
[MY/SG]; 110 Holland Avenue, Warner Court #06-04, Sin-  
gapore 278 966 (SG). **HO, Bow** [MY/SG]; 110 Holland  
Avenue, Warner Court #06-04, Singapore 278966 (SG).

(74) Agent: **DREW & NAPIER LLC**; 20 Raffles Place,  
#17-00, Ocean Towers, Singapore 048620 (SG).

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(54) Title: SUSHI PEPTIDE MULTIMER

(57) Abstract: Endotoxin, also known as lipopolysaccharides (LPS), is the major mediator of septic shock due to Gram-negative bacterial infection. Chemically synthesized S3 peptide, derived from Sushi3 domain of Factor C, which is the endotoxin-sensitive serine protease of the limulus coagulation cascade, binds and neutralizes LPS activity. Fluorescent tagged-S3 is shown to detect LPS-containing bacteria. For large-scale production of S3 and to mimic other pathogen-recognizing molecules, tandem multimers of the S3 gene were constructed and expressed in *E. coli*. Tetramer of S3 for example is shown to display an enhanced inhibitory effect on LPS-induced activities. An affinity matrix based on tetramer of S3 is also shown to be particularly efficient at removing LPS.

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